Amendments to the Claims

This listing of claims will replace all prior versions and listing of claims in this application.

Listing of claims:

What is claimed is:

1-14. (Canceled)

15. (Currently Amended) An olefin polymerization process comprising:

a) providing a chromium-based ~~or Ziegler-Natta~~ polymerization catalyst;

b) contacting said catalyst with an alpha olefin in a polymerization reactor under polymerization conditions with an anti-fouling polymer having an average molecular weight greater than 1,000 daltons and having

i) at least one polymer block characterized by the formula $-(CH_2\text{-}CH_2\text{-}\underline{O})_k-$ wherein k is within the range of $1 - 50$; and

ii) at least one polymer block characterized by the formula $-(CH_2\text{-}CH(R) - O)_n-$ wherein R comprises an alkyl group having from $1 - 6$ carbon atoms and n is within the range of $1 - 50$;

wherein said copolymer is terminated by end groups R' and R", R' is OH or a $C_1 - C_6$ alkoxy group and R" is H or a $C_1 - C_6$ alkyl group; and

c) recovering an olefin polymer from said reaction zone.

16. (Previously Presented) The process of claim 15 wherein R is a methyl group.

17. (Previously Presented) The process of claim 15 wherein said anti-fouling polymer is liquid at room temperature.
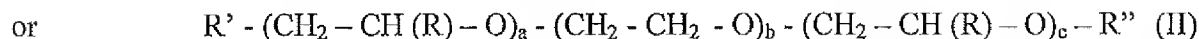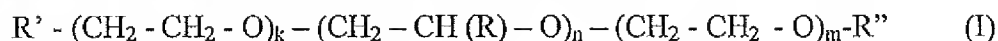
18. (Previously Presented) The process of claim 17 wherein said anti-fouling polymer has a molecular weight of at least about 2,000 daltons.

19. (Previously Presented) The process of claim 18 wherein said anti-fouling polymer has a molecular weight of no more than 5,000 daltons.

20. (Previously Presented)　The process of claim 18 wherein said anti-fouling polymer has a molecular weight within the range of 2,000 – 4,500 daltons.
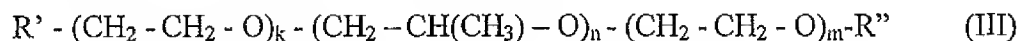
21. (Previously Presented)　The process of claim 15 wherein the ends of said anti-fouling polymer are hydrophilic.

22. (Previously Presented)　The process of claim 15 wherein said anti-fouling polymer comprises a block copolymer characterized by formula (I) or (II):

$$R' - (CH_2 - CH_2 - O)_k - (CH_2 - CH(R) - O)_n - (CH_2 - CH_2 - O)_m-R'' \qquad (I)$$

or $\qquad R' - (CH_2 - CH(R) - O)_a - (CH_2 - CH_2 - O)_b - (CH_2 - CH(R) - O)_c - R'' \quad (II)$

wherein R comprises an alkyl group; R' and R'' are end groups as defined in claim 15; k is from 1 to 50; n is from 1 to 50; $m \geq 1$; a is from 1 to 50; b is from 1 to 50; and c is from 0 to 50.

23. (Previously Presented)　The process of claim 22 wherein said anti-fouling polymer comprises a block copolymer characterized by formula (III):

$$R' - (CH_2 - CH_2 - O)_k - (CH_2 - CH(CH_3) - O)_n - (CH_2 - CH_2 - O)_m-R'' \qquad (III)$$

wherein R', R'', k, n, and m independently are as defined in claim 22.

24. (Previously Presented)　The process of claim 22 wherein the anti-fouling polymer comprises a block copolymer characterized by the general formula (V):

$$OH - (CH_2 - CH_2 - O)_k - (CH_2\ CH(CH_3) - O)_n - (CH_2 - CH_2 - O)_m-H \qquad (V)$$
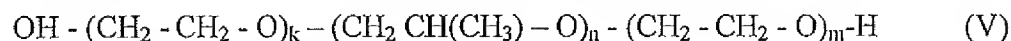
where k, n, and m independently are as defined in claim 22.

25. (Previously Presented)　The process of claim 15 wherein said reactor comprises a loop reactor.

26. (Previously Presented)　The process of claim 25 wherein said reactor comprises a double loop reactor.

27. (Previously Presented)   The process of claim 15 wherein said polymerization reactor is operated at a temperature within the range from 40° to 130° C.

28. (Previously Presented)   The process of claim 27 wherein said reactor is operated at a pressure within the range of from 5 to 200 bars.

29. (Previously Presented)   The process of claim 15 wherein said polymer comprises an alpha olefin homopolymer or copolymer.

30. (Previously Presented)   The process of claim 29 wherein said polymer is a homopolymer of ethylene or a copolymer of ethylene and at least one C_3+ alpha olefin.